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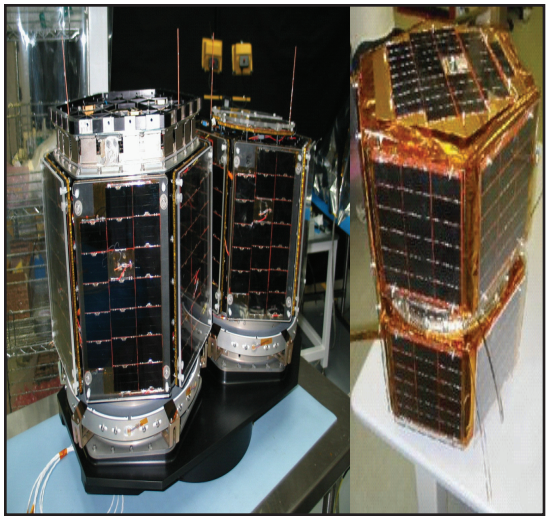
Technology Milestones

AFRL-LED UNIVERSITY COMPETITION PROVIDES INNOVATIVE SOLUTIONS FOR THE SMALL-SATELLITE COMMUNITY



Through AFRL's University Nanosat program, a student-built spacecraft made its first flight into orbit aboard a Boeing Delta IV heavy demonstration launch vehicle. The objectives of the program's funded projects are to complete small satellite (i.e., nanosat) design, fabrication, and functional testing; foster research to enable nanosat technologies; and design experiments that orbiting nanosats can perform.

In 1999, AFRL, the National Aeronautics and Space Administration's (NASA) Goddard Space Flight Center, and the American Institute of Aeronautics and Astronautics (AIAA) cofounded the University Nanosat program to provide a cooperative environment in which universities, government, and industry can develop innovative nanosat technologies. NASA and AIAA personnel act as judges and oversee activities at various student competitions. AFRL contributes funding for these program-level competitions and provides programmatic and technical program oversight, expert design guidance, integration and test services for the winner, and postlaunch oversight.

Nanosat-2, the second in a line of spacecraft designed and built by university participants, is also known as the Three Corner Satellite--a designation referencing the geographical dispersement of the student team members' respective universities: Arizona State University, the University of Colorado at Boulder, and New Mexico State University. Nanosat-2 incorporates state-of-the-art, AFRL Small Business Innovation Research-sponsored technology, including the Lightband Separation System (from Planetary Systems, Inc.) and the QwkSep Clamp Band (from Starsys Research Corporation). The mission successfully demonstrated the student-built spacecraft's safety caliber and the operation of the Starsys separation systems using an AFRL-built satellite deployment platform..

In parallel with Nanosat-2 integration and launch activities, the University Nanosat program oversaw the third program cycle (i.e., Nanosat-3), in which 13 universities designed and built hardware for the Nanosat-3 launch. A panel of 15 judges from the aerospace industry selected the University of Texas at Austin to receive funding for a student team's design known as FASTRAC [formation-autonomous spacecraft with thruster, relative navigation, attitude, and cross-link]. Currently under final construction. FASTRAC will characterize state-of-the-art Global Positioning System-based relative navigation, a novel micropropulsion system, and an improved prototype version of Planetary Systems' Lightband Separation System.

Additional Information

To receive more information about this or other activities in the Air Force Research Laboratory, contact TECH CONNECT, AFRL/XPTC, (800) 203-6451 and you will be directed to the appropriate laboratory expert. (VS-S-06-05)
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